NATIONAL PUBLIC
HEALTH ORGANIZATION

EPIDEMIOLOGICAL DATA FOR LISTERIOSIS IN GREECE

2004-2023

MANDATORY NOTIFICATION SYSTEM

Key points

- The notification rate of listeriosis in Greece is low. In the years 2015 and 2023, an increase of the reported cases was observed.
- Based on the data for the period 2004-2023:
  - The disease was more frequently reported in the age group ≥ 65 years old.
  - More than 50% of the notified cases were immunocompromised.
  - The case fatality rate was 24.0%.
  - The notification rate of listeriosis remained stable in the period 2020-2021, during the COVID-19 pandemic.
  - The notification rate of the disease, in 2022, was the lowest recorded in the last decade.

Listeriosis is a foodborne disease caused by *Listeria monocytogenes*. The case fatality rate of listeriosis is high compared to other foodborne diseases. It mainly affects pregnant women, newborns, the elderly and immunocompromised adults [1]. *Listeria* usually causes sporadic cases, however in recent years large outbreaks of listeriosis have been identified [2-6]. In Greece, listeriosis was introduced in the Mandatory Notification System in 2004.

Time trend

In total, 266 cases of listeriosis were reported in Greece from 2004 to 2023. The mean annual number of cases was 13.3 (standard deviation: 8.8) and the mean annual notification rate was 1.23 cases per 1,000,000 population. In the years 2015 and 2023, an increased number of listeriosis cases were observed (3.0 cases/1,000,000 population, respectively).

The number of notified cases and notification rates for the years 2004-2023 are presented in **Table 1**. The incidence of listeriosis by year is depicted in **Graph 1.**

Age and gender distribution

For the period 2004-2023, the highest mean annual notification rate of the disease regarded the age group of ≥ 65 years old (3.3/1,000,000 population) followed by the age group of 0-4 years old (1.3/1,000,000 population). During the same period, the mean annual notification rate was 1.4 cases/1,000,000 population for males and 1.1 cases/1,000,000 population for females. The notification rate of the disease by gender and age group (0-4, 5-14, 15-24, 25-44, 45-64, 65+ years) is depicted in **Graph 2**.

Seasonality

The mean monthly notification rate of the disease for 2004-2023 increased during spring, with a peak in March and gradually decreased in the following months (**Graph 3**).

Geographical distribution

The mean annual notification rate of hepatitis A by region for the period 2004-2023 is depicted in **Figure 1.** The highest mean annual notification rate was reported in the geographical Region of Crete (2.0 cases per 1,000,000 population) and the lowest in the l Region of Western Macedonia (0.2 cases per 1,000,000 population).

Risk factors/Outcome

One hundred and forty-one (53.0%) of the overall reported listeriosis cases, were immunocompromised, 10 (3.8%) were pregnant and 11 (4.1%) were newborns. Four (1.5%) cases of miscarriage and 8 (3.0%) cases of premature birth were reported. Among cases with known outcome (n=246), 59 (24.0%) deaths were recorded.

Conclusion

The notification rate of listeriosis is low in Greece (3.0 cases per 1,000,000 population for the year 2023). The mean notification rate in the EU and EEA countries (excluding UK) was 6.2 cases per 1,000,000 population for the year 2022 [7]. When interpreting this difference, the surveillance systems' probable under-reporting should be considered. The age distribution and the high case fatality are findings compatible with those of other European countries [8].

The notification rate of listeriosis remained stable in the period 2020-2021, during the COVID-19 pandemic, and this may be probably explained by the severity of the disease. The notification rate of the disease, in 2022, was the lowest recorded in the last decade.

The observed increase in 2015 has reinforced the collaboration of the involved public health authorities. The aim of the collaboration is the timely detection of cases/outbreaks of listeriosis and the protection of the immunocompromised population and pregnant women [9] by taking the appropriate public health measures.

A similar increase was reported in 2023. The epidemiological and laboratory investigation of the notified cases did not reveal any apparent cluster. The cooperation of the competent authorities and the coordination of the epidemiological investigation and the laboratory testing of clinical and food isolates with Whole Genome Sequencing techniques [2] is the cornerstone in the implementation of effective public health measures in the context of One Health approach.

References

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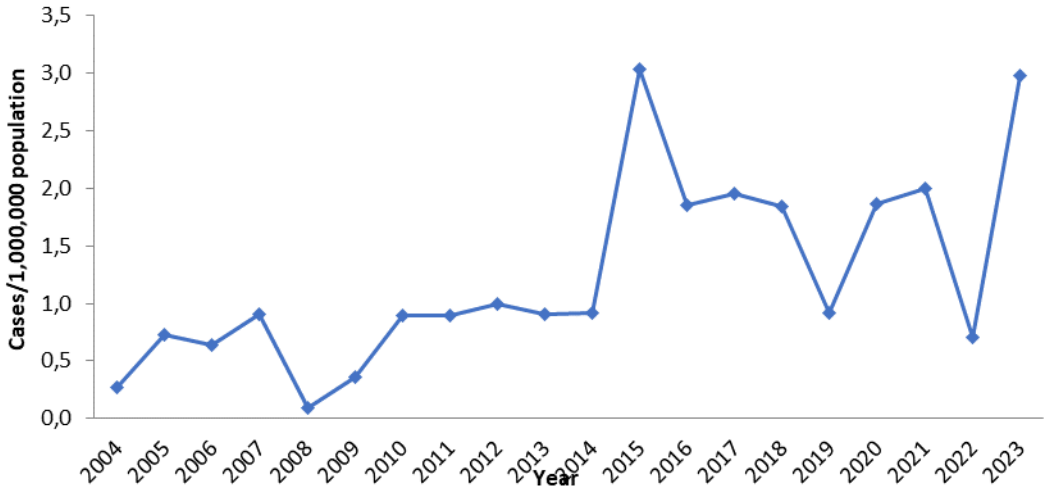
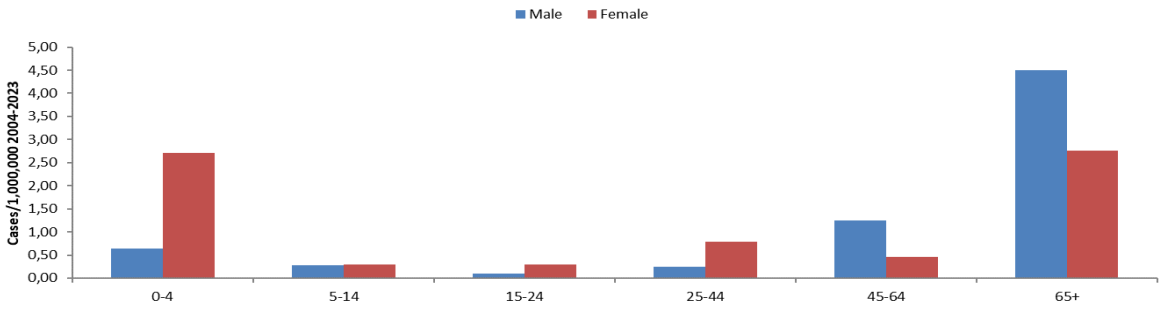
Table 1. Annual number of notified cases and notification rate of listeriosis in Greece, Mandatory Notification System, 2004-2023.

Year	Number of cases	Annual notification rate (per 1,000,000 population)
2004	3	0.3
2005	8	0.7
2006	7	0.6
2007	10	0.9
2008	1	0.1
2009	4	0.4
2010	10	0.9
2011	10	0.9
2012	11	1.0
2013	10	0.9
2014	10	0.9
2015	33	3.0
2016	20	1.9
2017	21	2.0
2018	19	1.8
2019	10	0.9
2020	20	1.9
2021	21	2.0
2022	7	0.7
2023	31	3.0
Total	**266**	**1.2***

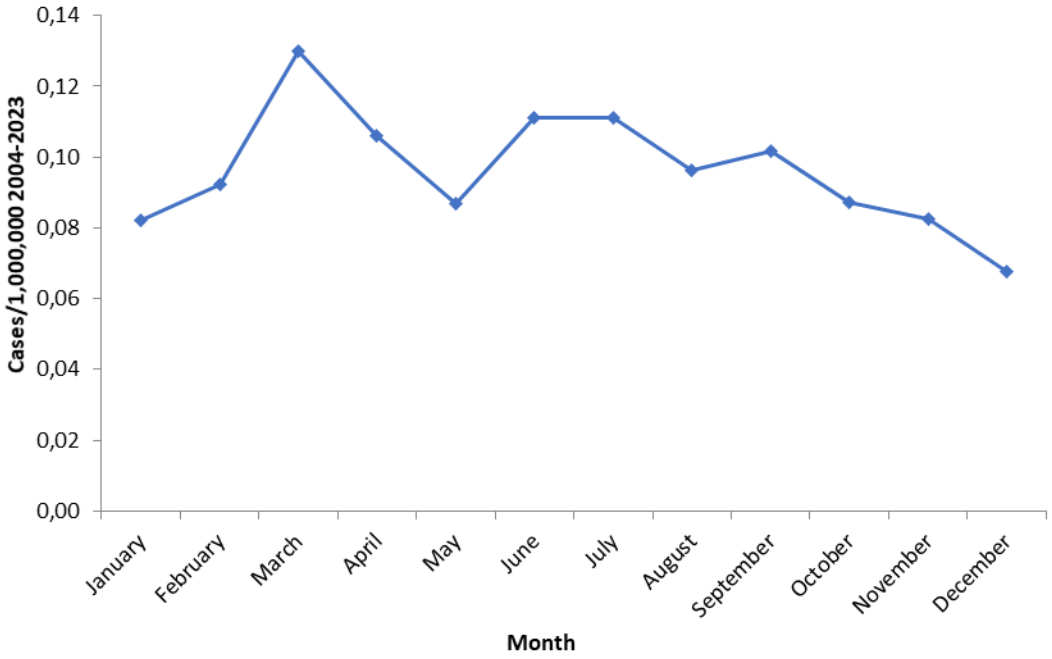
*Mean annual notification rate for the period 2004-2023



Graph 1. Annual notification rate of listeriosis in Greece (number of cases per 1,000,000 population), Mandatory Notification System, 2004-2023.



Graph 2. Notification rate of listeriosis by age group and gender in Greece, Mandatory Notification System, 2004-2023.



Graph 3. Mean monthly notification rate of listeriosis (cases/1,000,000 population) in Greece, Mandatory Notification System, 2004-2023.

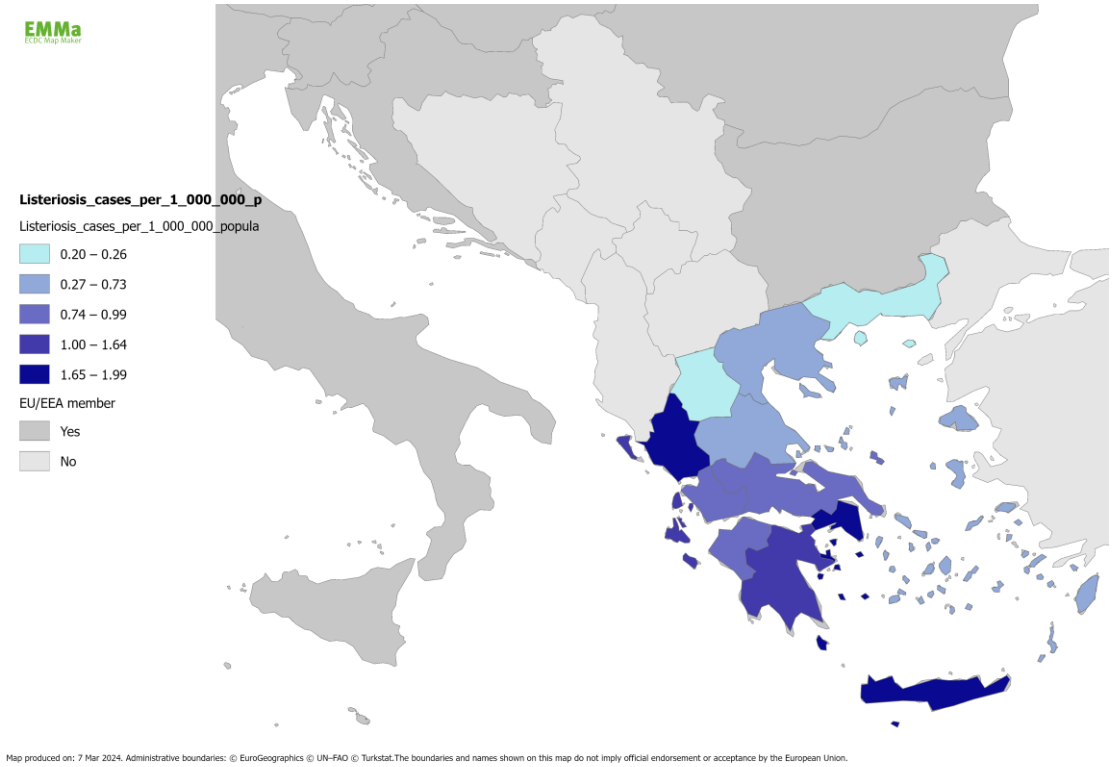


Figure 1. Mean annual notification rate (cases/1,000,000 population) of listeriosis by geographical region, Mandatory Notification System, Greece, 2004-2023.

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